



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-253



### **MQ-8 Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle Fire Scout (VTUAV)**

As of FY 2015 President's Budget

Defense Acquisition Management  
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## Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
BA - Budget Authority/Budget Activity  
BY - Base Year  
DAMIR - Defense Acquisition Management Information Retrieval  
Dev Est - Development Estimate  
DoD - Department of Defense  
DSN - Defense Switched Network  
Econ - Economic  
Eng - Engineering  
Est - Estimating  
FMS - Foreign Military Sales  
FY - Fiscal Year  
IOC - Initial Operational Capability  
\$K - Thousands of Dollars  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MILCON - Military Construction  
N/A - Not Applicable  
O&S - Operating and Support  
Oth - Other  
PAUC - Program Acquisition Unit Cost  
PB - President's Budget  
PE - Program Element  
Proc - Procurement  
Prod Est - Production Estimate  
QR - Quantity Related  
Qty - Quantity  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
Sch - Schedule  
Spt - Support  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting

## Program Information

**Program Name**

MQ-8 Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle Fire Scout (VTUAV)

**DoD Component**

Navy

## Responsible Office

**Responsible Office**

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**Date Assigned** June 17, 2011

## References

**SAR Baseline (Production Estimate)**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated February 2, 2009

**Approved APB**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated June 20, 2011

## Mission and Description

The MQ-8 Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle Fire Scout (VTUAV) program supports the Close Range Reconnaissance, Surveillance and Target Acquisition Capability Mission Need Statement, and the Capability Production Document for the VTUAV System, as ammended May 15, 2009. Additionally, the performance attributes of the MQ-8 support the Littoral Combat Ship, the Vertical Unmanned Air Vehicle (UAV), the Assured Maritime Access in the Littorals, the Joint Strike Enable and the Penetrating Intelligence, Surveillance, and Reconnaissance for Area Denial Threat Environments Initial Capabilities Documents.

An MQ-8 system is composed of air vehicles, Electro Optic/Infrared/Laser Designator Range Finder payload (one per air vehicle), Ground Control Station (GCS), Tactical Control System software, Tactical Common Data Link, UAV Common Automatic Recovery System for automatic take-offs and landings, and associated spares and support equipment. The MQ-8 launches and recovers vertically and can operate from all air capable ships as well as confined area land bases. Other characteristics include autonomous waypoint navigation with command override capability, a heavy fuel engine, and the ability to incorporate future mission packages. Each GCS will perform mission planning, air vehicle and mission payload control, receive incoming payload data and distribute the data to existing shipboard Command, Control, Communication, and Computer Information systems.

## Executive Summary

The MQ-8 VTUAV Fire Scout is an Acquisition Category (ACAT) IC program. The program is post-Milestone C and has procured 23 LRIP air vehicles, 20 Ground Control Stations, and 22 Unmanned Aerial Vehicle Common Automatic Recovery Systems. The program is aligned to the Littoral Combat Ship (LCS) Surface Warfare, Mine Counter Measures, and Anti-Submarine Warfare Mission Packages. In FY 2013, the program completed over 4,500 operational flight hours while deployed aboard Guided Missile Frigates supporting United States Africa Command (AFRICOM) Joint Emergent Operational Needs Statement (JEONS), AF-0002; and supporting the Intelligence, Surveillance, and Reconnaissance (ISR) Task Force in Afghanistan. The program has initiated fleet fielding and plans to declare IOC in the second quarter of FY 2014.

The FY 2015 PB defers air vehicle procurement to better align with LCS deliveries, while focusing on system wholeness with the integration and test of improved capabilities (endurance upgrade, radar, and weapons) into the Program of Record (POR) to support LCS mission packages. The procurement budget funds control stations, ancillary equipment, training equipment, support equipment, technical support and logistics which are critically needed to outfit the ships and train the aviation detachments for LCS. Integrating the endurance upgrade (MQ-8C) capability into the POR allows the total air vehicle procurement quantity to be reduced from 168 to 119 production air vehicles.

This combined increase in warfighter capability and reduction in total air vehicle quantity results in a Critical Nunn-McCurdy Unit Cost breach to the program's APUC and PAUC metrics. Although the APUC grew 52 percent over the 2012 SAR, total procurement dollars grew \$43M (BY 2006 dollars) or 2.4 percent. Similarly, PAUC grew \$192M (BY 2006 dollars) or 7.9 percent over the 2012 SAR due to additional funding for transition of increased capabilities. Overall, the additional transition investment will result in reduced air vehicle quantities and reduced sustainment cost.

A Program Deviation Report (PDR) was signed by the Program Manager on March 10, 2014. The Program Executive Office for Strike Weapons and Unmanned Aviation endorsed and forwarded the PDR to the Milestone Decision Authority, Assistant Secretary of the Navy for Research, Development and Acquisition, on March 10, 2014.

Funding included in this report is for the MQ-8 Fire Scout ACAT IC baseline POR that supports LCS mission packages and the planned transition of endurance upgrade (MQ-8C), radar and weapons capabilities into the acquisition framework. The funding for the Rapid Deployment Capabilities to support the AFRICOM JEONS and Navy Central Command Urgent Operational Needs Statement requirements for a sea-based ISR Unmanned Aircraft System with radar and weapons is not included in this report consistent with previous reports.

No APB changes have occurred since the September 30, 2012, out-of-cycle SAR that was submitted due to schedule breaches for Operational Evaluation, IOC, and Full Rate Production. The program plans to address these schedule breaches and the Critical Nunn-McCurdy Unit Cost breaches in 2014.

There are no significant software-related issues with this program at this time.

## Threshold Breaches

### APB Breaches

<b>Schedule</b>	<input checked="" type="checkbox"/>
<b>Performance</b>	<input type="checkbox"/>
<b>Cost</b>	<input checked="" type="checkbox"/>
RDT&E	<input checked="" type="checkbox"/>
Procurement	<input type="checkbox"/>
MILCON	<input type="checkbox"/>
Acq O&M	<input type="checkbox"/>
<b>O&amp;S Cost</b>	<input type="checkbox"/>
<b>Unit Cost</b>	<input checked="" type="checkbox"/>
PAUC	<input checked="" type="checkbox"/>
APUC	<input checked="" type="checkbox"/>

### Explanation of Breach

The FY 2015 PB defers air vehicle procurement to better align with Littoral Combat Ship (LCS) deliveries, while focusing on system wholeness with the integration and test of improved capabilities (endurance upgrade, radar, and weapons) into the Program of Record (POR) to support LCS mission packages. The procurement budget resources control stations, ancillary equipment, training equipment, support equipment, technical support and logistics which are critically needed to outfit the ships and train the aviation detachments for LCS. Integrating the endurance upgrade (MQ-8C) capability into the POR allows the total air vehicle procurement quantity to be reduced from 168 to 119 production air vehicles.

### Nunn-McCurdy Breaches

<b>Current UCR Baseline</b>	
PAUC	Critical
APUC	Critical
<b>Original UCR Baseline</b>	
PAUC	Critical
APUC	Critical

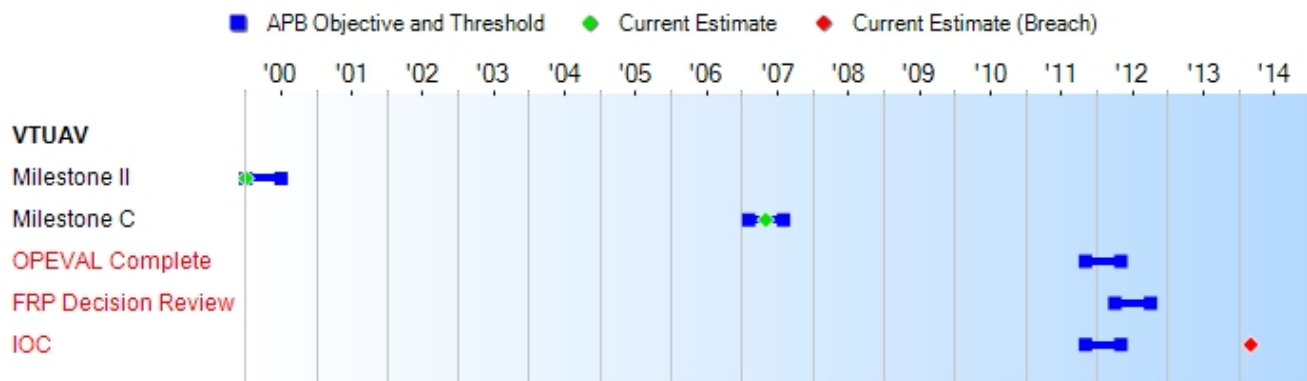
This combined increase in warfighter capability and reduction in total air vehicle quantity results in a Critical Nunn-McCurdy Unit Cost breach to the program's APUC and PAUC metrics. Unit cost growth is not due to program management issues or out of control contractor cost growth. Although the APUC grew 52 percent over the 2012 SAR, total procurement dollars grew \$43M (BY 2006 dollars) or 2.4 percent. Similarly, PAUC grew \$192M (BY 2006 dollars) or 7.9 percent over the 2012 SAR due to additional funding for transition of increased capabilities. Overall, the additional transition investment will result in reduced air vehicle quantities and reduced sustainment cost.

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No APB changes have occurred since the September 30, 2012 out-of-cycle SAR that was submitted due to schedule breaches for Operational Evaluation, IOC, and Full-Rate Production. The program plans to address these schedule breaches and the Critical Nunn-McCurdy Unit Cost breaches in Calendar Year 2014.



## Schedule



Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	
Milestone II	JAN 2000	JAN 2000	JUL 2000	JAN 2000	
Milestone C	FEB 2007	FEB 2007	AUG 2007	MAY 2007	
OPEVAL Complete	SEP 2009	NOV 2011	MAY 2012	N/A <sup>1</sup>	(Ch-1)
FRP Decision Review	NOV 2009	APR 2012	OCT 2012	N/A <sup>1</sup>	(Ch-1)
IOC	SEP 2009	NOV 2011	MAY 2012	MAR 2014 <sup>1</sup>	(Ch-2)

<sup>1</sup>APB Breach

### Change Explanations

(Ch-1) The OPEVAL Complete current estimate has changed from November 2011 to N/A and the FRP DR current estimate has changed from November 2011 to N/A because the Navy does not plan to complete any more Operational Testing, nor to purchase any additional MQ-8B air vehicles. New current estimates for OPEVAL Complete and FRP DR for the MQ-8 system will be developed and reported after the Navy approves the final Acquisition Strategy in FY 2014 and updates the APB in FY 2015.

(Ch-2) The IOC current estimate has changed from April 2012 to March 2014 due to delays in the completion of a Military Utility Assessment for the MQ-8 system aboard a Guided Missile Frigate. The testing was completed in November 2013 and the release of the Commander, Operational Test and Evaluation Forces report supporting the IOC decision was approved in March 2014.

### Acronyms and Abbreviations

FRP DR - Full Rate Production Decision Review  
 OPEVAL - Operational Evaluation

## Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Automatic Launch/Recovery (Ship Operations)					
Deck Pitch (degrees)	+/- 5	+/- 5	+/-3	+/-2 at seas; +/-5 land	+/-5
Deck Roll (degrees)	+/- 8	+/- 8	+/- 5	+/-5 at seas; +/-10 land	+/- 8
Target Identification					
Slant Range (km)	16	16	6	10	16
Operational Availability	>= 0.95	>= 0.95	>= 0.85	0.88	>= 0.85
Net-Ready	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric Military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric Military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric Military operations to include 1) ISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated	The system has demonstrated all Net Ready Capabilities that have been implemented in the host FFG and LCS class ships.	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric Military operations to include 1) ISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated

	<p>GIG IPs identified in the KIP declaration table. 3) NCOW RW Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, and issuance of an ATO by the DAA. 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architectural views.</p>	<p>GIG IPs identified in the KIP declaration table. 3) NCOW RW Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, and issuance of an ATO by the DAA. 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architectural views.</p>	<p>GIG KIPs identified in the KIP declaration table. 3) NCOW RW Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, and issuance of an IATO by the DAA. 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architectural views.</p>		<p>GIG KIPs identified in the KIP declaration table. 3) NCOW RW Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, and issuance of an IATO by the DAA. 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architectural views.</p>
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#### Requirements Source

Capability Production Document (CPD) dated May 15, 2009

**Change Explanations**

None

**Acronyms and Abbreviations**

ATO - Authority to Operate  
DAA - Designated Approving Authority  
DISR - Defense Information Standards Registry  
FFG - Guided Missile Frigate  
GIG - Global Information Grid  
IA - Information Assurance  
IATO - Interim Authority to Operate  
IP - Information Protocol  
ISR - Information Standards Registry  
IT - Information Technology  
KIP - Key Information Protocol  
km - Kilometer  
LCS - Littoral Combat Ship  
NCOW RM - Net-Centric Operational Warfare Reference Model  
TV - Technical View

## Track to Budget

### RDT&E

Appn	BA	PE	
Navy	1319	07	0305204N
	<b>Project</b>	<b>Name</b>	
	2768	Tactical Unmanned Aerial Vehicles/VTUAV	(Shared) (Sunk)
	<b>Notes:</b>	PU2768, VTUAV	
Navy	1319	07	0305231N
	<b>Project</b>	<b>Name</b>	
	2768	MQ-8 UAV	(Shared)
	<b>Notes:</b>	PU2768, MQ-8 UAV	

In FY 2010, VTUAV was moved from PE 0305204N to PE 0305231N.

RDT&E funding within the PE 0305231N now includes the planned transition of endurance upgrade (MQ-8C), radar and weapons capabilities into the acquisition framework, so the PE is no longer sunk. The funding for the Rapid Deployment Capabilities (RDC) to support the United States Africa Command Joint Emergent Operational Needs Statement and Navy Central Command Urgent Operational Needs Statement requirements for a sea-based Intelligence Surveillance and Reconnaissance Unmanned Aircraft System with radar and weapons are not included in this SAR.

### Procurement

Appn	BA	PE	
Navy	1506	04	0305204N
	<b>Line Item</b>	<b>Name</b>	
	044300	Vertical Take-off UAV (VTUAV)	(Sunk)
Navy	1506	04	0305231N
	<b>Line Item</b>	<b>Name</b>	
	044300	MQ-8 UAV	(Shared)
Navy	1506	06	0305231N
	<b>Line Item</b>	<b>Name</b>	
	0605	MQ-8 UAV	(Shared)

In FY 2010, VTUAV was moved from PE 0305204N to PE 0305231N.

The majority of the funding included in PE 0305231N in FY 2012 - FY 2014 is associated with the endurance upgrade RDC and is not included in this SAR.

## Cost and Funding

### Cost Summary

#### Total Acquisition Cost and Quantity

Appropriation	BY2006 \$M			BY2006 \$M	TY \$M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold	Current Estimate		SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	541.1	617.1	678.8	<b>765.8</b> <sup>1</sup>	530.3	614.4	801.7
Procurement	1522.4	1748.9	1923.8	1848.9	1821.5	2226.1	2669.1
Flyaway	--	--	--	1376.7	--	--	2019.9
Recurring	--	--	--	1321.5	--	--	1941.8
Non Recurring	--	--	--	55.2	--	--	78.1
Support	--	--	--	472.2	--	--	649.2
Other Support	--	--	--	403.7	--	--	570.9
Initial Spares	--	--	--	68.5	--	--	78.3
MILCON	119.6	0.0	--	0.0	126.0	0.0	0.0
Acq O&M	183.3	0.0	--	0.0	309.3	0.0	0.0
Total	2366.4	2366.0	N/A	2614.7	2787.1	2840.5	3470.8

<sup>1</sup> APB Breach

Confidence Level for Current APB Cost 60% -

The current estimate aims to provide sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule and programmatic risk, and external interference. It is consistent with average resource expenditures on historical efforts of similar size, scope, and complexity.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	9	7	7
Procurement	168	168	119
Total	177	175	126

## Cost and Funding

### Funding Summary

#### Appropriation and Quantity Summary FY2015 President's Budget / December 2013 SAR (TY\$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	609.4	5.0	47.3	53.2	33.5	6.5	6.6	40.2	801.7
Procurement	395.1	20.4	47.3	44.2	28.6	24.7	26.1	2082.7	2669.1
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	1004.5	25.4	94.6	97.4	62.1	31.2	32.7	2122.9	3470.8
PB 2014 Total	1004.7	19.4	34.7	37.0	22.6	18.9	125.4	1894.1	3156.8
Delta	-0.2	6.0	59.9	60.4	39.5	12.3	-92.7	228.8	314.0

Funding included in this report is for the MQ-8 Fire Scout Acquisition Category IC baseline Program of Record that supports Littoral Combat Ship mission packages and the planned transition of endurance upgrade (MQ-8C), radar and weapons capabilities into the acquisition framework. The funding for the Rapid Deployment Capabilities to support the United States Africa Command Joint Emergent Operational Needs Statement and Navy Central Command Urgent Operational Needs Statement requirement for a sea-based Intelligence Surveillance and Reconnaissance Unmanned Aircraft System with radar and weapons are not included in this report; therefore, the SAR does not match the budget exhibits for this PE.

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	7	0	0	0	0	0	0	0	0	7
Production	0	23	0	0	0	0	0	0	96	119
PB 2015 Total	7	23	0	0	0	0	0	0	96	126
PB 2014 Total	7	23	0	0	0	0	0	7	138	175
Delta	0	0	0	0	0	0	0	-7	-42	-49

## Cost and Funding

### Annual Funding By Appropriation

#### Annual Funding TY\$

#### 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
2000	--	--	--	--	--	--	34.8
2001	--	--	--	--	--	--	66.2
2002	--	--	--	--	--	--	47.8
2003	--	--	--	--	--	--	39.3
2004	--	--	--	--	--	--	36.0
2005	--	--	--	--	--	--	59.1
2006	--	--	--	--	--	--	93.2
2007	--	--	--	--	--	--	100.0
2008	--	--	--	--	--	--	62.8
2009	--	--	--	--	--	--	22.5
2010	--	--	--	--	--	--	25.5
2011	--	--	--	--	--	--	19.7
2012	--	--	--	--	--	--	2.5
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	5.0
2015	--	--	--	--	--	--	47.3
2016	--	--	--	--	--	--	53.2
2017	--	--	--	--	--	--	33.5
2018	--	--	--	--	--	--	6.5
2019	--	--	--	--	--	--	6.6
2020	--	--	--	--	--	--	6.7
2021	--	--	--	--	--	--	6.7
2022	--	--	--	--	--	--	6.7
2023	--	--	--	--	--	--	6.7
2024	--	--	--	--	--	--	6.7
2025	--	--	--	--	--	--	6.7



Subtotal	7	--	--	--	--	--	801.7
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**Annual Funding BY\$****1319 | RDT&E | Research, Development, Test, and Evaluation, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 2006 \$M</b>	<b>Non End Item Recurring Flyaway BY 2006 \$M</b>	<b>Non Recurring Flyaway BY 2006 \$M</b>	<b>Total Flyaway BY 2006 \$M</b>	<b>Total Support BY 2006 \$M</b>	<b>Total Program BY 2006 \$M</b>
2000	--	--	--	--	--	--	38.6
2001	--	--	--	--	--	--	72.4
2002	--	--	--	--	--	--	51.8
2003	--	--	--	--	--	--	42.0
2004	--	--	--	--	--	--	37.4
2005	--	--	--	--	--	--	59.8
2006	--	--	--	--	--	--	91.5
2007	--	--	--	--	--	--	95.8
2008	--	--	--	--	--	--	59.1
2009	--	--	--	--	--	--	20.9
2010	--	--	--	--	--	--	23.3
2011	--	--	--	--	--	--	17.6
2012	--	--	--	--	--	--	2.2
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	4.2
2015	--	--	--	--	--	--	39.5
2016	--	--	--	--	--	--	43.5
2017	--	--	--	--	--	--	26.9
2018	--	--	--	--	--	--	5.1
2019	--	--	--	--	--	--	5.1
2020	--	--	--	--	--	--	5.1
2021	--	--	--	--	--	--	5.0
2022	--	--	--	--	--	--	4.9
2023	--	--	--	--	--	--	4.8
2024	--	--	--	--	--	--	4.7
2025	--	--	--	--	--	--	4.6
<b>Subtotal</b>	<b>7</b>	--	--	--	--	--	<b>765.8</b>

**Annual Funding TY\$****1506 | Procurement | Aircraft Procurement, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway TY \$M</b>	<b>Non End Item Recurring Flyaway TY \$M</b>	<b>Non Recurring Flyaway TY \$M</b>	<b>Total Flyaway TY \$M</b>	<b>Total Support TY \$M</b>	<b>Total Program TY \$M</b>
2007	3	32.2	--	3.9	36.1	11.5	47.6
2008	3	32.4	--	1.4	33.8	11.6	45.4
2009	3	31.6	--	3.2	34.8	22.3	57.1
2010	11	109.8	--	5.8	115.6	28.6	144.2
2011	3	31.3	--	1.3	32.6	14.5	47.1
2012	--	0.3	--	1.0	1.3	24.6	25.9
2013	--	11.8	--	--	11.8	16.0	27.8
2014	--	1.0	--	--	1.0	19.4	20.4
2015	--	11.5	--	--	11.5	35.8	47.3
2016	--	15.9	--	--	15.9	28.3	44.2
2017	--	8.0	--	--	8.0	20.6	28.6
2018	--	7.6	--	--	7.6	17.1	24.7
2019	--	8.0	--	--	8.0	18.1	26.1
2020	6	98.9	--	8.6	107.5	28.5	136.0
2021	6	99.9	--	3.5	103.4	22.6	126.0
2022	6	101.0	--	3.5	104.5	22.3	126.8
2023	6	100.1	--	3.4	103.5	22.6	126.1
2024	6	98.3	--	3.3	101.6	21.1	122.7
2025	6	100.0	--	3.4	103.4	22.2	125.6
2026	6	101.5	--	3.5	105.0	22.1	127.1
2027	6	97.6	--	3.4	101.0	22.9	123.9
2028	6	99.3	--	3.4	102.7	22.9	125.6
2029	6	101.0	--	3.5	104.5	23.7	128.2
2030	6	102.7	--	3.5	106.2	23.7	129.9
2031	6	104.4	--	3.6	108.0	24.6	132.6
2032	6	106.2	--	3.6	109.8	24.5	134.3
2033	6	107.8	--	3.7	111.5	25.4	136.9
2034	6	109.8	--	3.8	113.6	25.4	139.0
2035	6	111.9	--	3.8	115.7	26.3	142.0

<b>Subtotal</b>	<b>119</b>	<b>1941.8</b>	<b>--</b>	<b>78.1</b>	<b>2019.9</b>	<b>649.2</b>	<b>2669.1</b>
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**Annual Funding BY\$****1506 | Procurement | Aircraft Procurement, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 2006 \$M</b>	<b>Non End Item Recurring Flyaway BY 2006 \$M</b>	<b>Non Recurring Flyaway BY 2006 \$M</b>	<b>Total Flyaway BY 2006 \$M</b>	<b>Total Support BY 2006 \$M</b>	<b>Total Program BY 2006 \$M</b>
2007	3	30.4	--	3.7	34.1	10.9	45.0
2008	3	30.2	--	1.3	31.5	10.8	42.3
2009	3	29.0	--	2.9	31.9	20.5	52.4
2010	11	98.8	--	5.2	104.0	25.7	129.7
2011	3	27.6	--	1.1	28.7	12.8	41.5
2012	--	0.3	--	0.9	1.2	21.3	22.5
2013	--	10.1	--	--	10.1	13.6	23.7
2014	--	0.8	--	--	0.8	16.3	17.1
2015	--	9.5	--	--	9.5	29.4	38.9
2016	--	12.8	--	--	12.8	22.8	35.6
2017	--	6.3	--	--	6.3	16.3	22.6
2018	--	5.9	--	--	5.9	13.2	19.1
2019	--	6.1	--	--	6.1	13.7	19.8
2020	6	73.6	--	6.4	80.0	21.2	101.2
2021	6	72.9	--	2.6	75.5	16.5	92.0
2022	6	72.3	--	2.5	74.8	15.9	90.7
2023	6	70.2	--	2.4	72.6	15.9	88.5
2024	6	67.6	--	2.3	69.9	14.5	84.4
2025	6	67.4	--	2.3	69.7	15.0	84.7
2026	6	67.1	--	2.3	69.4	14.6	84.0
2027	6	63.3	--	2.2	65.5	14.8	80.3
2028	6	63.1	--	2.2	65.3	14.5	79.8
2029	6	62.9	--	2.2	65.1	14.8	79.9
2030	6	62.7	--	2.1	64.8	14.5	79.3
2031	6	62.5	--	2.2	64.7	14.7	79.4
2032	6	62.3	--	2.1	64.4	14.4	78.8
2033	6	62.0	--	2.1	64.1	14.7	78.8
2034	6	61.9	--	2.1	64.0	14.4	78.4
2035	6	61.9	--	2.1	64.0	14.5	78.5

<b>Subtotal</b>	<b>119</b>	<b>1321.5</b>	<b>--</b>	<b>55.2</b>	<b>1376.7</b>	<b>472.2</b>	<b>1848.9</b>
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This note is related to the Cost Quantity Information Table: The procurement funding in FY 2012 - FY 2019 is associated with the purchase of Ground Control Stations, ship's ancillary equipment, and spares required to support ship installations and deployments in those years. It is accounted for with the aircraft quantity in FY 2020 - FY 2022, although other aircraft may be used to support those ships.

**Cost Quantity Information****1506 | Procurement | Aircraft Procurement, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway (Aligned with Quantity) BY 2006 \$M</b>
2007	3	30.4
2008	3	30.2
2009	3	29.0
2010	11	98.8
2011	3	27.6
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	6	90.9
2021	6	90.2
2022	6	89.5
2023	6	70.2
2024	6	67.6
2025	6	67.4
2026	6	67.1
2027	6	63.3
2028	6	63.1
2029	6	62.9
2030	6	62.7
2031	6	62.5
2032	6	62.3
2033	6	62.0

2034	6	61.9
2035	6	61.9
<b>Subtotal</b>	<b>119</b>	<b>1321.5</b>



## Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	5/29/2007	7/22/2010
Approved Quantity	4	23
Reference	Milestone C ADM	Congressional Emergency Supplemental Appropriation HR-4899
Start Year	2007	2007
End Year	2007	2012

The Current Total LRIP Quantity is more than 10% of the total production quantity due to August 4, 2010, Congressional Emergency Supplemental Appropriation HR-4899 which funded Overseas Contingency Operations to convert eight Army airframes bought under the Army's Future Combat System program into Navy Fire Scouts.

The initial Acquisition Decision Memorandum for Milestone C approved the program to purchase up to four aircraft, and to buy-to-budget. This guidance resulted in a purchase of three aircraft.

An LRIP decision on September 30, 2008 authorized purchase of three aircraft for LRIP 2 and three aircraft for LRIP 3.

An LRIP decision on July 22, 2010, authorized purchase of five aircraft for LRIP 4 and three aircraft for LRIP 5. Only three new aircraft were purchased under LRIP 4.

## Foreign Military Sales

None

## Nuclear Costs

None

## Unit Cost

### Unit Cost Report

	BY2006 \$M	BY2006 \$M	
Unit Cost	Current UCR Baseline (JUN 2011 APB)	Current Estimate (DEC 2013 SAR)	BY % Change

#### Program Acquisition Unit Cost (PAUC)

Cost	2366.0	2614.7	
Quantity	175	126	
Unit Cost	13.520	20.752	<b>+53.49</b> <sup>1</sup>

#### Average Procurement Unit Cost (APUC)

Cost	1748.9	1848.9	
Quantity	168	119	
Unit Cost	10.410	15.537	<b>+49.25</b> <sup>1</sup>

	BY2006 \$M	BY2006 \$M	
Unit Cost	Original UCR Baseline (DEC 2006 APB)	Current Estimate (DEC 2013 SAR)	BY % Change

#### Program Acquisition Unit Cost (PAUC)

Cost	2366.4	2614.7	
Quantity	177	126	
Unit Cost	13.369	20.752	<b>+55.22</b> <sup>1</sup>

#### Average Procurement Unit Cost (APUC)

Cost	1522.4	1848.9	
Quantity	168	119	
Unit Cost	9.062	15.537	<b>+71.45</b> <sup>1</sup>

	TY \$M		
Unit Cost	Current UCR Baseline (JUN 2011 APB)	Current Estimate (DEC 2013 SAR)	TY % Change

#### Program Acquisition Unit Cost (PAUC)

Cost	2840.5	3470.8	
Unit Cost	16.231	27.546	<b>+69.71</b>

#### Average Procurement Unit Cost (APUC)

Cost	2226.1	2669.1	
Unit Cost	13.251	22.429	<b>+69.26</b>

Unit Cost	TY \$M		
	Original UCR Baseline (DEC 2006 APB)	Current Estimate (DEC 2013 SAR)	TY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	2787.1	3470.8	
Unit Cost	15.746	27.546	+74.94
Average Procurement Unit Cost (APUC)			
Cost	1821.5	2669.1	
Unit Cost	10.842	22.429	+106.87

### <sup>1</sup> Nunn-McCurdy Breach

The FY 2015 PB defers air vehicle procurement to better align with Littoral Combat Ship (LCS) deliveries, while focusing on system wholeness with the integration and test of improved capabilities (endurance upgrade, radar, and weapons) into the Program of Record (POR) to support LCS mission packages. The procurement budget resources control stations, ancillary equipment, training equipment, support equipment, technical support and logistics which are critically needed to outfit the ships and train the aviation detachments for LCS. Integrating the endurance upgrade (MQ-8C) capability into the POR allows the total air vehicle procurement quantity to be reduced from 168 to 119 production air vehicles.

This combined increase in warfighter capability and reduction in total air vehicle quantity results in a Critical Nunn-McCurdy Unit Cost breach to the program's APUC and PAUC metrics. Unit cost growth is not due to program management issues or out-of-control contractor cost growth. Although the APUC grew 52 percent over the 2012 SAR, total procurement dollars grew \$43M (BY 2006 dollars) or 2.4 percent. Similarly, PAUC grew \$192M (BY 2006 dollars) or 7.9 percent over the 2012 SAR due to additional funding for transition of increased capabilities. Overall, the additional transition investment will result in reduced air vehicle quantities and reduced sustainment cost.

### Unit Cost Breach Data

Changes from Previous SAR	\$M/Qty.	Percent
PAUC (BY \$M)	6.932	+50.16
APUC (BY \$M)	4.786	+44.52
PAUC Quantity	-49	0.00
PAUC (TY \$M)	9.507	+52.70
APUC (TY \$M)	7.266	+47.92
Initial SAR Information	BY \$M	TY \$M
Program Acquisition Cost	2366.4	2787.1

### Unit Cost PAUC Changes

PAUC increases 55 percent over the original APB. The FY 2015 PB transitions the endurance upgrade (MQ-8C), radar, and weapons capabilities into the Fire Scout System. The increase in capability allows for a decrease in air vehicle procurement quantities from 168 to 119. The combined impact of the procurement of the added capability, and the reduced quantity, increases the PAUC 49 percent. Prior year PAUC growth of 4 percent was attributed to production line stretching (2 percent) and air vehicle cost growth of the MQ-8B LRIP

units (2 percent).

#### **Unit Cost APUC Changes**

APUC increases 71 percent over the original APB. The FY 2015 PB transitions the endurance upgrade (MQ-8C), radar, and weapons capabilities into the Fire Scout System. The increase in capability allows for a decrease in air vehicle quantities from 168 to 119. The combined impact of the procurement of the added capability, and reduced quantity, increases the APUC 52 percent. Prior year APUC growth of 19 percent was attributed to production line stretching due to schedule delays (12 percent) and air vehicle cost growth of the MQ-8B LRIP units (7 percent).

#### **Impact of Performance or Schedule Changes**

The increase in capability of the endurance upgrade (MQ-8C), radar, and weapons contributes to program growth: PAUC 29 percent, and APUC 26 percent. Quantity and production rate (schedule stretch out) play a significant part in the unit cost growth to the Critical Nunn-McCurdy level. Reducing the procurement quantity to 119 amortizes all of the ship components over a smaller denominator: although the APUC grew 52 percent over the 2012 SAR, total procurement dollars grew \$43M (BY 2006 dollars) or 2.4 percent.

#### **Program Management or Control**

Program management and controls are in place and have been effective for the program. The program has been managed within cost controls since its inception in FY 2000. Prior schedule breaches for Operational Evaluation, IOC, and Full Rate Production were attributed to ship platform availability and system reliability.

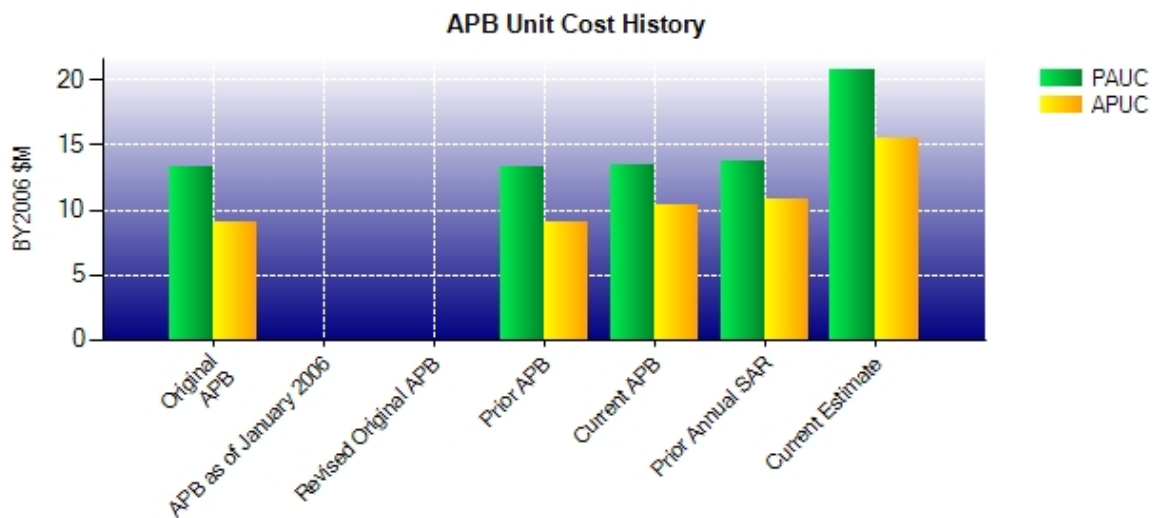
#### **Cost Control Actions**

Actions already taken to control costs: transitioned multiple production items to fixed price; transitioned Contractor Furnished Equipment items to Government Furnished Equipment (GFE). Additional actions are planned to compete the purchase of GFE items.

#### **Nunn-McCurdy Comments**

It is the Office of the Secretary of Defense's intent to execute a Nunn-McCurdy review as directed by statute.

## Unit Cost History



	Date	BY2006 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	DEC 2006	13.369	9.062	15.746	10.842
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	FEB 2009	13.369	9.062	15.746	10.842
Current APB	JUN 2011	13.520	10.410	16.231	13.251
Prior Annual SAR	DEC 2012	13.820	10.751	18.039	15.163
Current Estimate	DEC 2013	20.752	15.537	27.546	22.429

## SAR Unit Cost History

### Initial SAR Baseline to Current SAR Baseline (TY \$M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
15.746	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.746

### Current SAR Baseline to Current Estimate (TY \$M)

PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
15.746	0.156	2.354	3.769	5.620	-1.946	0.000	1.847	11.800	27.546

**Initial SAR Baseline to Current SAR Baseline (TY \$M)**

Initial APUC Dev Est	Changes								APUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.842	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.842

**Current SAR Baseline to Current Estimate (TY \$M)**

APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.842	0.171	0.208	3.991	4.334	0.928	0.000	1.955	11.587	22.429

**SAR Baseline History**

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	JAN 2000	JAN 2000	JAN 2000
Milestone C	N/A	FEB 2007	FEB 2007	MAY 2007
IOC	N/A	N/A	SEP 2009	MAR 2014
Total Cost (TY \$M)	N/A	2787.1	2787.1	3470.8
Total Quantity	N/A	177	177	126
Prog. Acq. Unit Cost (PAUC)	N/A	15.746	15.746	27.546

**Cost Variance**

Summary Then Year \$M					
	RDT&E	Proc	MILCON	Acq O&M	Total
SAR Baseline (Prod Est)	530.3	1821.5	126.0	309.3	2787.1
Previous Changes					
Economic	-0.6	+24.3	--	--	+23.7
Quantity	--	--	--	--	--
Schedule	--	+276.0	--	--	+276.0
Engineering	--	--	--	--	--
Estimating	+79.7	+111.2	-126.0	-309.3	-244.4
Other	--	--	--	--	--
Support	--	+314.4	--	--	+314.4
Subtotal	+79.1	+725.9	-126.0	-309.3	+369.7
Current Changes					
Economic	--	-4.0	--	--	-4.0
Quantity	--	-506.5	--	--	-506.5
Schedule	--	+198.9	--	--	+198.9
Engineering	+192.3	+515.8	--	--	+708.1
Estimating	--	-0.8	--	--	-0.8
Other	--	--	--	--	--
Support	--	-81.7	--	--	-81.7
Subtotal	+192.3	+121.7	--	--	+314.0
Total Changes	+271.4	+847.6	-126.0	-309.3	+683.7
CE - Cost Variance	801.7	2669.1	--	--	3470.8
CE - Cost & Funding	801.7	2669.1	--	--	3470.8



Summary Base Year 2006 \$M					
	RDT&E	Proc	MILCON	Acq O&M	Total
SAR Baseline (Prod Est)	541.1	1522.4	119.6	183.3	2366.4
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	-2.5	--	--	-2.5
Engineering	+0.2	--	--	--	+0.2
Estimating	+71.1	+111.5	-119.6	-183.3	-120.3
Other	--	--	--	--	--
Support	--	+174.7	--	--	+174.7
Subtotal	+71.3	+283.7	-119.6	-183.3	+52.1
Current Changes					
Economic	--	--	--	--	--
Quantity	--	-307.8	--	--	-307.8
Schedule	--	+75.9	--	--	+75.9
Engineering	+153.4	+330.0	--	--	+483.4
Estimating	--	-0.5	--	--	-0.5
Other	--	--	--	--	--
Support	--	-54.8	--	--	-54.8
Subtotal	+153.4	+42.8	--	--	+196.2
Total Changes	+224.7	+326.5	-119.6	-183.3	+248.3
CE - Cost Variance	765.8	1848.9	--	--	2614.7
CE - Cost & Funding	765.8	1848.9	--	--	2614.7

Previous Estimate: December 2012

<b>RDT&amp;E</b>	<b>\$M</b>	
<b>Current Change Explanations</b>	<b>Base Year</b>	<b>Then Year</b>
Additional funding to transition the endurance upgrade, radar, and weapons capabilities to the Program of Record (POR). (Engineering)	+153.4	+192.3
<b>RDT&amp;E Subtotal</b>	<b>+153.4</b>	<b>+192.3</b>

<b>Procurement</b>	<b>\$M</b>	
<b>Current Change Explanations</b>	<b>Base Year</b>	<b>Then Year</b>
Revised escalation indices. (Economic)	N/A	-4.0
Adjustment for current and prior escalation. (Estimating)	+0.3	+0.3
Total Quantity variance resulting from a decrease of 49 aircraft, from 168 to 119. (Subtotal)	-311.2	-512.0
Quantity variance resulting from a decrease of 49 aircraft from 168 to 119. (Quantity)	(-307.8)	(-506.5)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-2.5)	(-4.1)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-0.9)	(-1.4)
Stretch-out of the procurement buy profile that moved aircraft purchases from FY 2014 - FY 2019 to FY 2032 - FY 2035 and reduced aircraft procurement rates from FY 2019 - FY 2032. (Schedule)	0.0	+80.1
Additional schedule variance for Material Cost and Ground Control Station procurement profile changes. (Schedule)	+78.4	+122.9
Additional funding for payload and endurance capabilities for the POR. (Engineering)	+330.0	+515.8
Revised estimate due to Navy priority shifts. (Estimating)	+0.1	+0.3
Adjustment for current and prior escalation. (Support)	+0.7	+0.7
Decrease in Other Support due to decrease in aircraft quantity. (Support) (QR)	-63.6	-92.3
Increase in Initial Spares due to increased flight hour estimates to support the warfighter. (Support)	+8.1	+9.9
<b>Procurement Subtotal</b>	<b>+42.8</b>	<b>+121.7</b>

(QR) Quantity Related

## Contracts

### Appropriation: Procurement

Contract Name	<b>LRIP</b>
Contractor	Northrop Grumman Corporation
Contractor Location	San Diego, CA 92150-9066
Contract Number, Type	N00019-07-C-0041, FFP
Award Date	June 21, 2007
Definitization Date	April 24, 2008

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price at Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
40.3	N/A	3	213.7	N/A	23	213.7	213.7

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the additional Contract Line Item Numbers added to the contract for the additional LRIP buys authorized by various Acquisition Decision Memoranda from FY 2008 - FY 2010. This resulted in the addition of 20 aircraft to the total contract quantity.

### Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

### Contract Comments

This contract is more than 90% complete; therefore, this is the final report for this contract.

## Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	7	7	7	100.00%
Production	21	21	119	17.65%
Total Program Quantity Delivered	28	28	126	22.22%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	3470.8	Years Appropriated	15
Expended to Date	960.4	Percent Years Appropriated	41.67%
Percent Expended	27.67%	Appropriated to Date	1029.9
Total Funding Years	36	Percent Appropriated	29.67%

The above data is current as of 3/10/2014.

## Operating and Support Cost

### VTUAV

#### Assumptions and Ground Rules

##### Cost Estimate Reference:

The O&S costs are based on the most current Program Life Cycle Cost Estimate from January 2011 and will be updated after the Nunn-McCurdy certification is complete (FY 2014) and the Navy approves the final Acquisition Strategy (FY 2014), updates the Service Cost Position (FY 2014), and updates the APB (FY 2015). All costs are estimated in BY 2006.

##### Sustainment Strategy:

The VTUAV Sustainment strategy supports 168 aircraft and 55 ship-based ground control segments. The strategy includes a mixture of both Organic and Contractor Organizational to Depot sustainment support. Upon further Business Case Analyses the anticipated mix of sustainment is to optimize Organic and Contractor solutions. The air vehicle has a design life, which minimizes the air vehicle Total Ownership Costs over 6,000 flight hours and 20 years. The VTUAV system will be operated and maintained from FY 2010 – FY 2035, with an IOC of FY 2014. This estimate includes attrition of 7.09 aircraft for every 100,000 flight hours. The system is expected to meet that attrition rate after the system has accumulated 100,000 flight hours. The current estimate is based upon 1,624 total operational aircraft years.

As defined by the Cost Assessment and Program Evaluation Department O&S Cost Estimating Guide of October 2007, Total O&S Costs for the VTUAV represents the program office's current estimate for 168 procured aircraft with a Primary Aircraft Authorized of 114 over the estimate duration of FY 2010 - FY 2035.

##### Antecedent Information:

There is no antecedent for this system.

Unitized O&S Costs BY2006 \$K		
Cost Element	VTUAV Average Annual Cost per Air Vehicle	No Antecedent (Antecedent) N/A
Unit-Level Manpower	347.600	--
Unit Operations	32.000	--
Maintenance	1325.600	--
Sustaining Support	198.000	--
Continuing System Improvements	158.000	--
Indirect Support	174.800	--
Other	0.000	--
Total	2236.000	--

##### Unitized Cost Comments:

The Average Annual Cost per Air Vehicle of 2.236 \$M is calculated by dividing Total O&S cost of 3,631.4 \$M by the total number of operational aircraft years of 1,624.

Total O&S Cost \$M				
Current Production APB Objective/Threshold		Current Estimate		
VTUAV		VTUAV	No Antecedent (Antecedent)	
<b>Base Year</b>	3307.0	3637.7	3631.4	N/A
<b>Then Year</b>	5131.3	N/A	5537.3	N/A

Total O&S Costs Comments:

None

**Disposal Costs:**

The VTUAV disposal costs are estimated to be 21.1 \$M (BY 2006 dollars).